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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,712	10/10/2003	Georg Bogner	P2001,0258	2057
24131	7590	03/21/2005	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			NGUYEN, JOSEPH H	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	Application No. 10/683,712	Applicant(s) BOGNER ET AL.	
	Examiner Joseph Nguyen	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10, 11, 16, 17, 29-31, 38-42-44 and 50 is/are rejected.
- 7) ☒ Claim(s) 5-9, 13, 14, 20-26, 28, 32-37 and 45-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
     Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 16, 17-19, 27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Bhatt et al.

Regarding claim 1, Bhatt et al. discloses on figure 8 a lead frame for a radiation emitting component comprising a mount part having at least one wire connecting area 38; an opening formed therein 20, 22; and at least one external electrical connecting strip 74; and a separately manufacturing thermal connecting part 71 disposed in said opening and fastened into said mount part, said thermal connecting part having at least one chip mounting area (readable on figure 8).

Regarding claims 3 and 4, the claim language is merely the product by process and therefore does not structurally distinguish from Bhatt et al.

Regarding claim 16, Bhatt et al. discloses on figure 8 a lead frame for a light emitting diode component comprising a mount part having at least one wire connecting area 38; an opening formed therein 20, 22; and at least one external electrical connecting strip 74; and a separately manufactured thermal connecting part 71

disposed in said opening and fastened into said mount part, said thermal connecting part having at least one chip mounting area.

Regarding claims 17 and 29, Bhatt et al. discloses on figure 8 a housing for light emitting component comprising lead-frame including a mount part having at least one wire connecting area 38; an opening formed therein 20, 22; and at least one external electrical connecting strip 74; and a separately manufactured thermal connecting part 71 disposed in said opening and fastened into said mount part, said thermal connecting part having at least one chip mounting area.

Regarding claim 18, Bhatt et al. discloses on figure 6 a housing base body 10, 12, 14 formed from a molding compound; said lead frame 38 being embedded in said base body to pass out said connecting trip from said base body, and said thermal connecting part 71 having a thermal connecting surface thermally connectable from the outside.

Regarding claim 19, Bhatt et al. discloses on figure 8 said base body has a radiation outlet window; and said thermal connecting part 71 is embed in said base body to disposed said chip mounting area in said radiation outlet window.

Regarding claim 27, Bhatt teaches that said lead frame is a surface mounted lead frame.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. as applied to rejected base claim 1 above, and further in view of Suzuki (JP 11346006).

Regarding claim 2, Bhatt et al. discloses on figure 8 substantially all the structures set forth in the claimed invention except said mount part having one of a bracket and an eye into which said thermal connecting part being linked. However, Suzuki discloses on figures 1 and 4 said mount part 4 having one of a bracket and an eye into which said thermal connecting part 2 being linked. In view of such teaching, it would have been obvious to one of ordinary skill to modify Bhatt et al. by having said mount part having one of a bracket and an eye into which said thermal connecting part being linked for the purpose of improving the packing of a chip in a semiconductor device.

Regarding claims 10-11, Bhatt et al. and Suzuki together disclose all the structure or steps of the method set forth in the claimed invention.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. as applied to rejected base claim 1 above, and further in view of Abbott.

Regarding claim 12, Bhatt et al. discloses on figure 8 substantially all the structure set forth in the claimed invention except the lead frame containing copper. However, Abbott teaches about a lead frame containing copper (para [0059]). In view of

such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bhatt et al. by having the lead frame containing copper for the purpose of providing a reliability of wire bonding the chip to the lead frame as taught by Abbott (Para [0059]).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. as applied to rejected base claim 1 above, and further in view of Waitl et al.

Regarding claim 15, Bhatt et al discloses on figure 8 substantially all the structure set forth in the claimed invention except the radiation-emitting component being a light emitting diode. However, Waitl et al. teaches that the radiation emitting component being a light emitting diode (col. 1, lines 15-19). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bhatt et al. by having the radiation-emitting component being a light emitting diode utilizing an improved chip housing structure in a semiconductor device.

Claims 30-31, 38, 39, 40, 43, 44, 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. in view of Waitl et al.

Regarding claims 30 and 50, Bhatt et al. discloses on figure 8 substantially all the structures and steps of the method set forth in the claimed invention except the chip being a radiation emitting chip. However, Waitl et al. teaches about using a radiation-emitting chip in a housing structure (col. 1, lines 10-19). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify Bhatt et al. by having the chip being a radiation-emitting chip for the purpose of utilizing an improved chip housing structure in a semiconductor device.

Regarding claim 31, Wail et al teaches that the chip is a semiconductor chip (col. 1, lines 15-19).

Regarding claim 38, Bhatt et al. and Waitl et al. teach that the chip (col. 8, line 7 in Bhatt et al.) is a semiconductor chip (col. 1, lines 15-19 in Waitl et al.) mounted on said chip mounting area of the thermal connecting part 71 (figure 8 of Bhatt et al.).

Regarding claim 39, Bhatt et al. discloses on figure 8 the chip (col. 8, line 7) is connected to the chip mounting area 71 by an adhesive bond 73.

Regarding claim 40, Bhatt et al. discloses on figure 8 the chip is adhesively bonded to the chip mounting area 71.

Regarding claim 43, Bhatt et al. discloses on figure 8 a wire connection 74 electrically conductively connecting the chip to the wire connecting area 38.

Regarding claim 44, Bhatt et al. and Waitl et al. discloses the steps of the method comprising providing the mount part 24 (figure 8 of Bhatt et al.); fastening the thermal connecting part 71 having the chip mount area into the opening 20, 22 formed in the mount part (figure 8 of Bhatt et al.); fitting the radiation emitting chip (col. 1, lines 15-19 of Waitl et al.) to the chip mounting area; and embedding the mount part and the thermal connecting part in a housing molding compound 20 (figure 1 of Waitl et al.).

Claims 41, 42 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. and Waitl et al. and further in view of Matsumoto et al. (JP02187058A).

Regarding claims 41 and 48, Bhatt et al. and Waitl et al. together disclose substantially all the structure set forth in the claimed invention except the chip being mounted on the chip mounting area by a silver solder. However, Matsumoto et al. discloses on figure 3 the chip 5 being mounted on the chip mounting area 2 by a silver solder 6. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bhatt et al. and Waitl et al. by having the chip being mounted on the chip mounting area by a silver solder for the purpose of improving the heat radiation characteristics as taught by Matsumoto et al. (See Abstract).

Regarding claim 42, Matsumoto et al. teaches that the silver solder has a melting point temperature greater than 260C. Note that the standard melting point of silver is 962C, which is greater than 260C.

### ***Allowable Subject Matter***

Claims 5-9, 13-14, 20-26, 28, 32-37, 45-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-50 have been considered but are moot in view of the new ground(s) of rejection.



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN  
March 14, 2005

  
ALLAN R. WILSON  
PRIMARY EXAMINER